Fig. 1A PRIOR ART

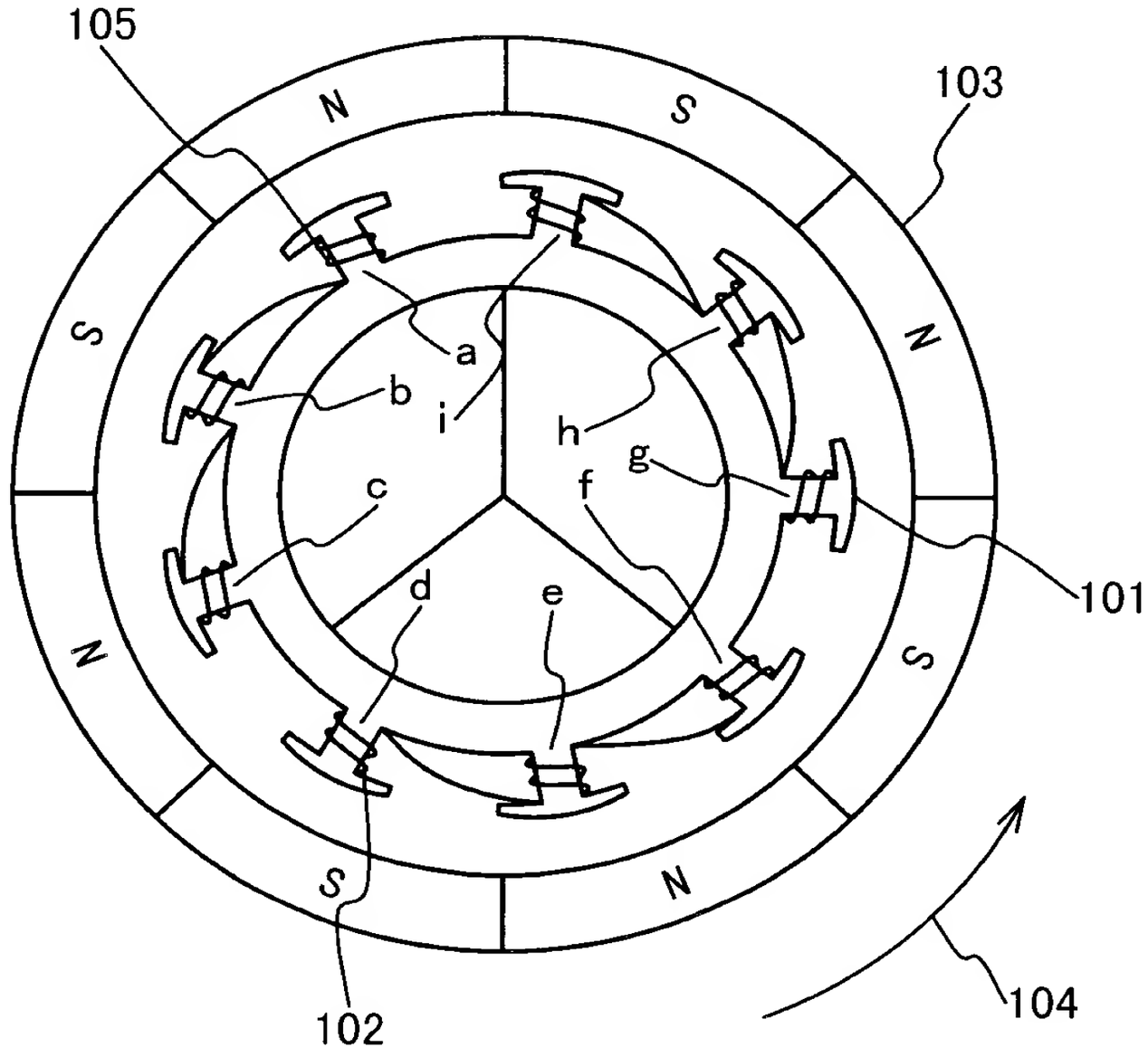

Fig. 1B PRIOR ART

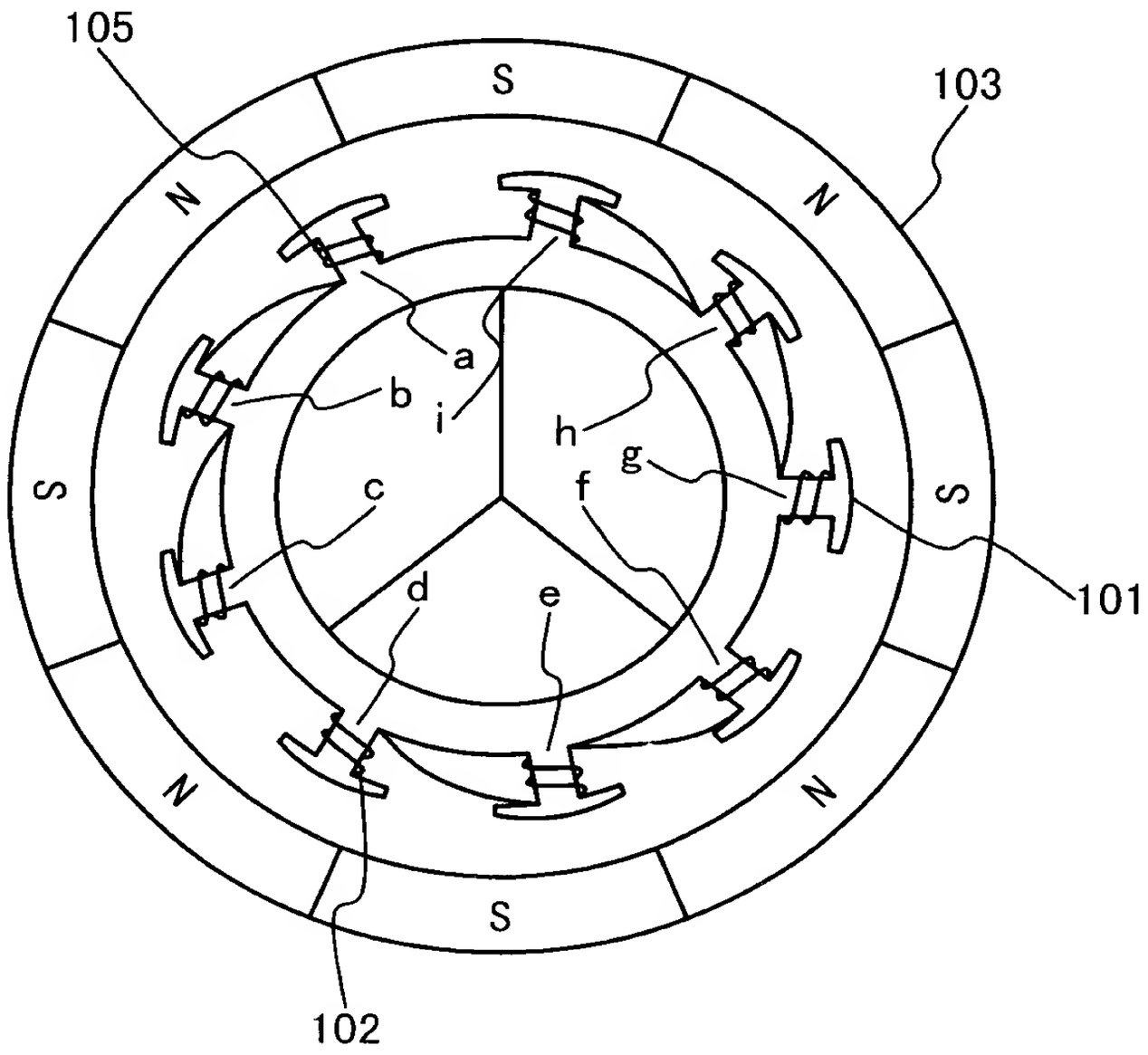

Fig. 2 PRIOR ART

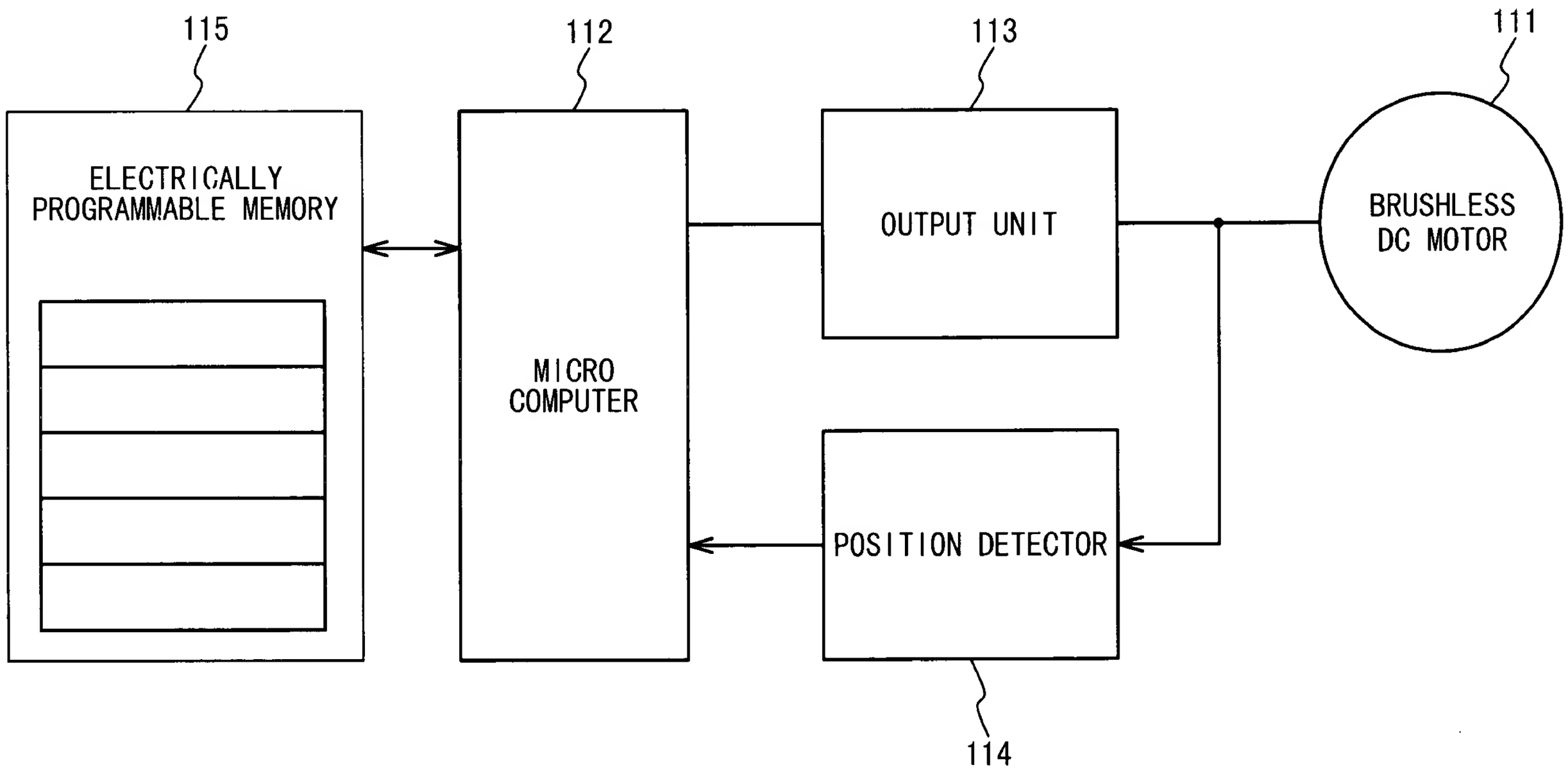

Fig. 3A PRIOR ART

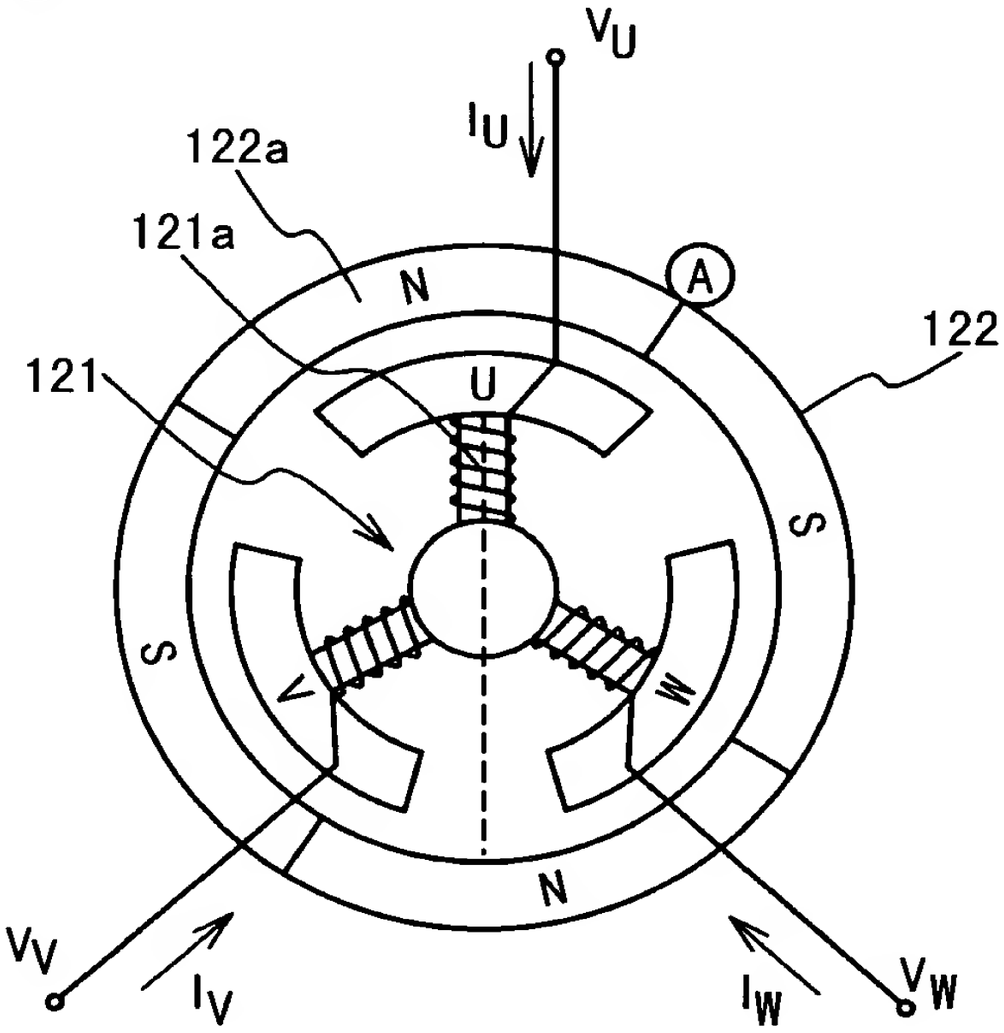

Fig. 3B PRIOR ART

TIMING	(1)	(2)	(3)	(4)	(5)	(6)
U PHASE DRIVE VOLTAGE V_U	V_{cc}	V_{cc}	N. C.	GND	GND	N. C.
V PHASE DRIVE VOLTAGE V_V	GND	N. C.	V_{cc}	V_{cc}	N. C.	GND
W PHASE DRIVE VOLTAGE V_W	N. C.	GND	GND	N. C.	V_{cc}	V_{cc}

Fig. 3C PRIOR ART

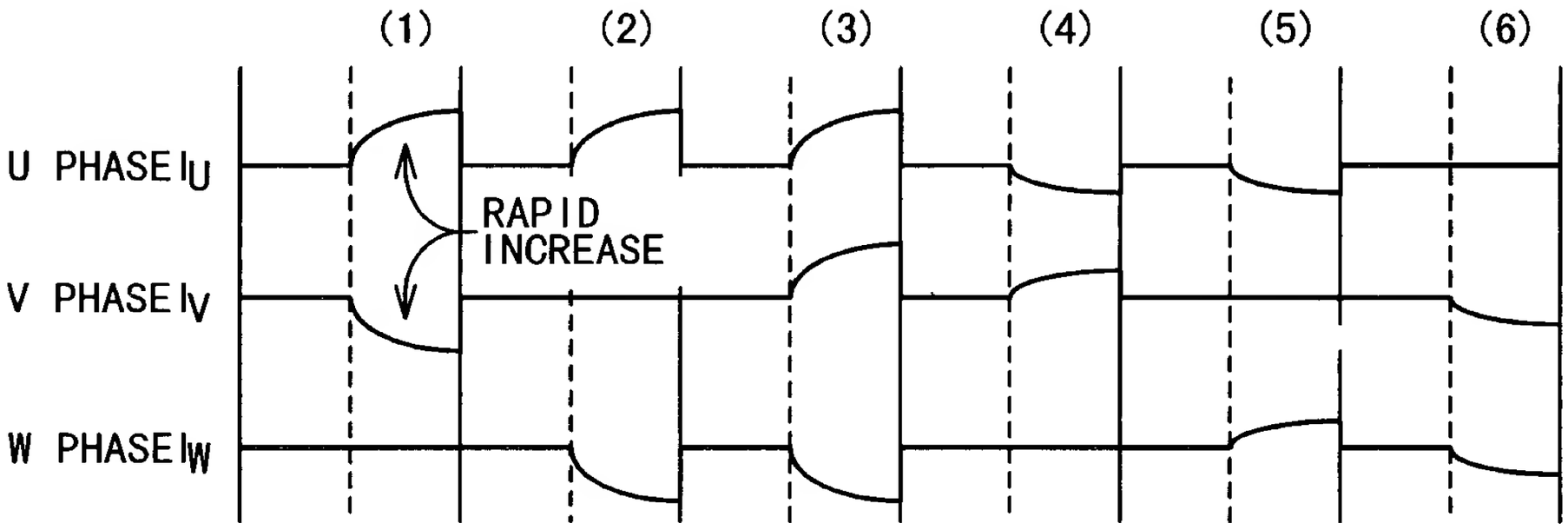

Fig. 4

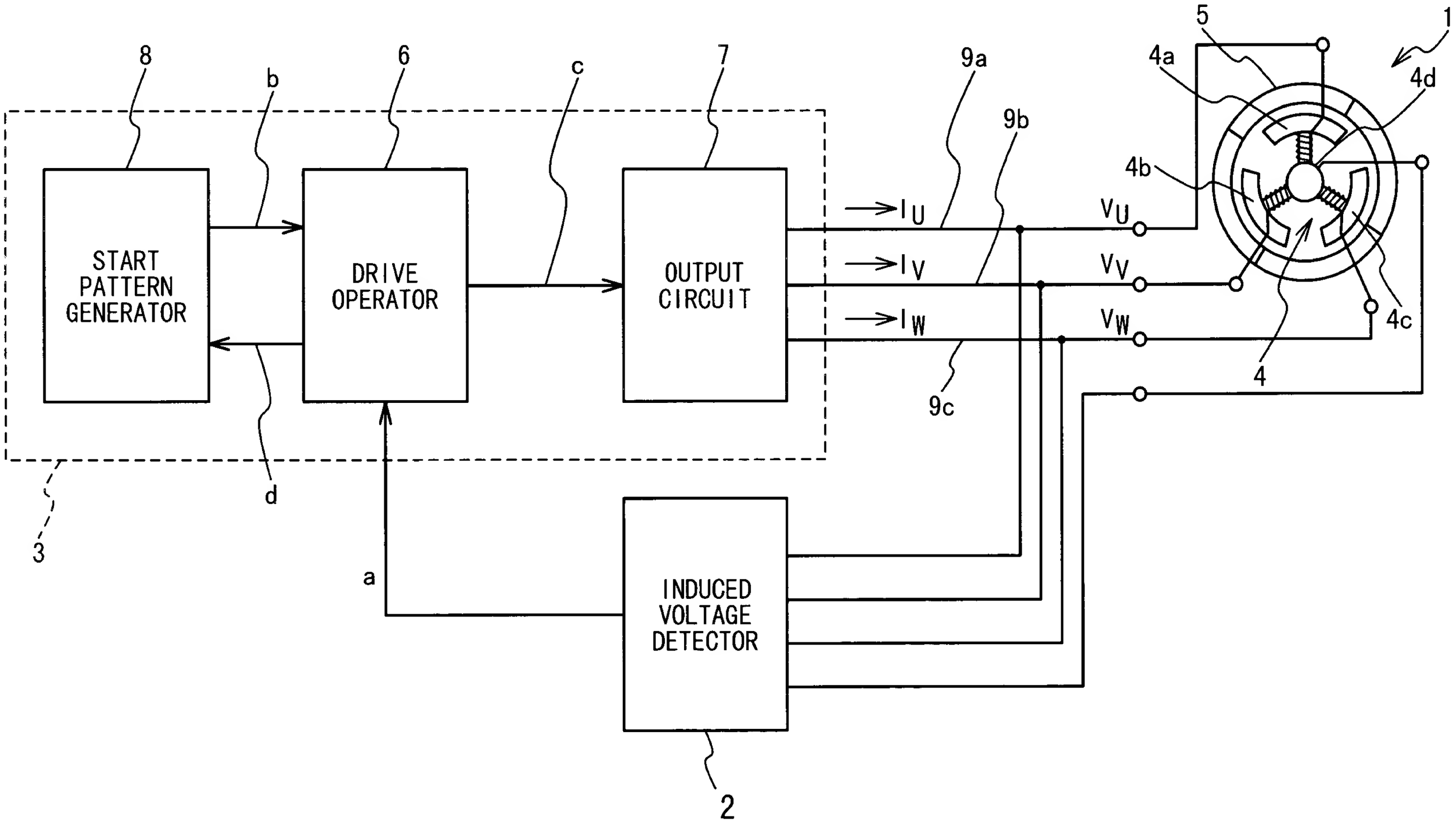
8
b
6
c
7
9a
9b
5
1
4a
4d
4b
START PATTERN GENERATOR
DRIVE OPERATOR
OUTPUT CIRCUIT
I_U
I_V
I_W
V_U
V_V
V_W
4c
4
9c
d
3
a
INDUCED VOLTAGE DETECTOR
2

Fig. 5

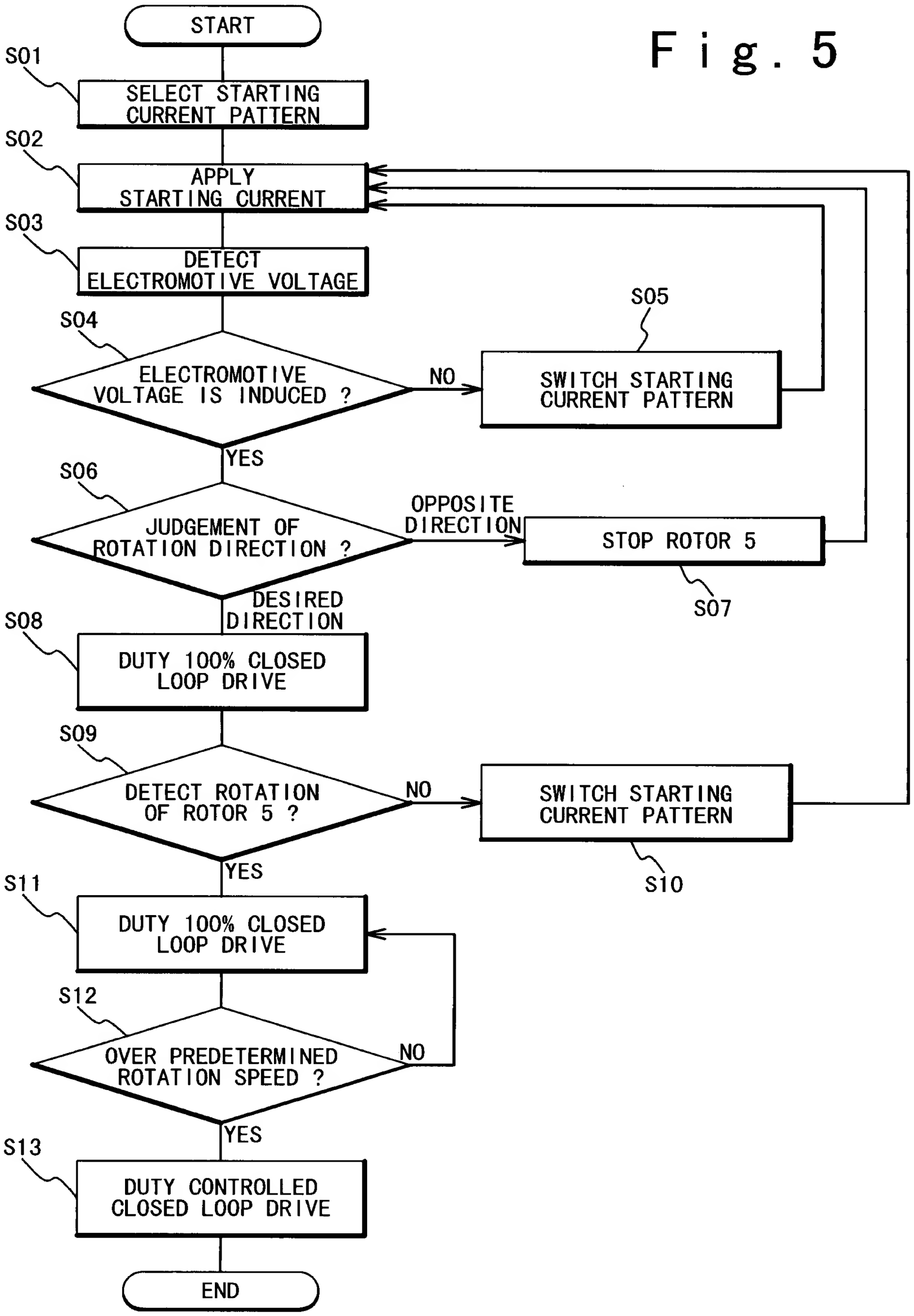
START
S01
SELECT STARTING CURRENT PATTERN
S02
APPLY STARTING CURRENT
S03
DETECT ELECTROMOTIVE VOLTAGE
S04
ELECTROMOTIVE VOLTAGE IS INDUCED ?
NO
S05
SWITCH STARTING CURRENT PATTERN
YES
S06
JUDGEMENT OF ROTATION DIRECTION ?
OPPOSITE DIRECTION
STOP ROTOR 5
S07
DESIRED DIRECTION
S08
DUTY 100% CLOSED LOOP DRIVE
S09
DETECT ROTATION OF ROTOR 5 ?
NO
SWITCH STARTING CURRENT PATTERN
S10
YES
S11
DUTY 100% CLOSED LOOP DRIVE
S12
OVER PREDETERMINED ROTATION SPEED ?
NO
YES
S13
DUTY CONTROLLED CLOSED LOOP DRIVE
END

Fig. 6

STRTING CURRENT PATTERN	STARTING CURRENT	U PHASE LINE 9a	V PHASE LINE 9b	V PHASE LINE 9c
PATTERN 1	V→U	GND	V_{cc}	NC
PATTERN 2	V→W	NC	V_{cc}	GND
PATTERN 3	U→W	V_{cc}	NC	GND
PATTERN 4	U→V	V_{cc}	GND	NC
PATTERN 5	W→V	NC	GND	V_{cc}
PATTERN 6	W→U	GND	NC	V_{cc}

Fig. 7